

Suspended

Trend Study 3-5-96

Study site name: Mathias Canyon.

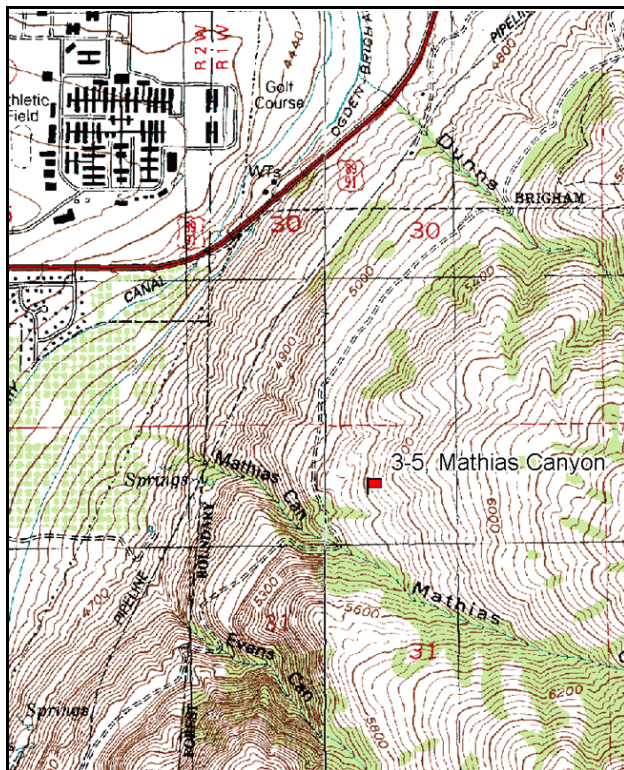
Vegetation type: Smooth Sumac.

Compass bearing: frequency baseline 165 degrees magnetic.

Frequency belt placement: Line 1 (11 & 95ft), line 2 (34 & 71ft), line 3 (59ft).

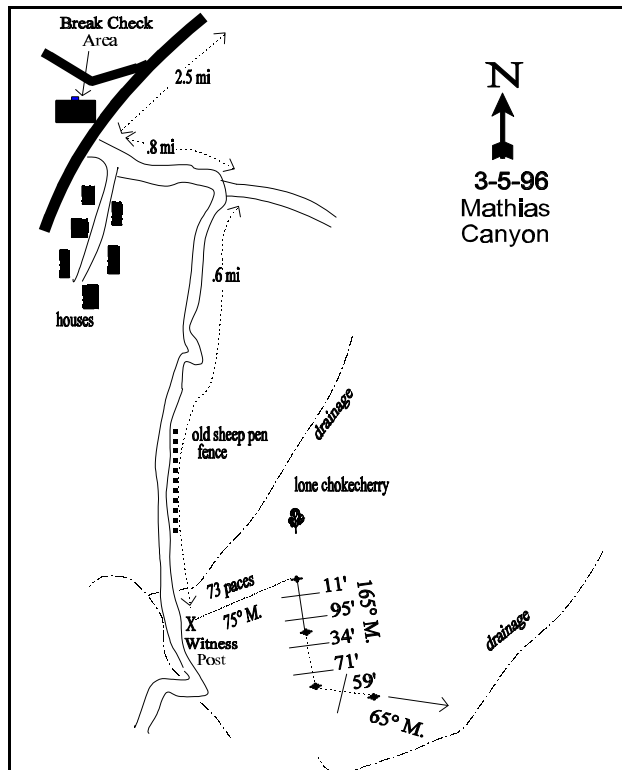
LOCATION DESCRIPTION

From Mantua Hatchery, proceed to Box Elder Canyon road (west bound), turn left toward Brigham City, and travel 2.5 miles to a point where a dirt road takes off to the left. A truck brake test area is just opposite and slightly north of this point. Turn left, take left fork up a dugway to DWR property and proceed 0.7 miles toward bench and mouth of Box Elder Canyon. After 0.7 mile you will come to a sharp hairpin turn to the right. Turn right here and travel 0.6 miles up onto bench and stop just before Mathias Creek passes under the road. Just before this the creek will pass across the face of an old sheep pen. Approximately 40 feet north of where the creek crosses the road there is a witness post on the east side of the road. From the witness post to the 0-foot baseline stake walk 70 paces at a bearing of 75 degrees magnetic. The 0-foot baseline stake is marked with browse tag #7996. The baseline runs 165 degrees magnetic.



Map Name: Mantua

Township 9N, Range 1W, Section 31



Diagrammatic Sketch

UTM 4592180 N 416650 E

DISCUSSION

Trend Study No. 3-5

*****SUSPENDED** - This site was suspended in 2001 and will be reevaluated in 2006. In 2001, this site was evaluated by the Project Leader and it was determined that there was no wildlife use and very little important browse on the site. This was the case in 1996 when the study was sampled last. Text and data tables are included from the 1996 report.

The Mathias Canyon study samples a very steep (65%), west facing slope that is located above the upper Lake Bonneville terrace on the north side of Mathias Canyon. Elevation is approximately 5,280 feet. Thought to be important as severe winter range in the past, the study site is characterized by an extremely rocky soil surface and a badly depleted vegetative composition. Heavy deer use in 1984 was confirmed by pellet group frequency and the level of browsing on available shrubs. Currently ('96), there is no sign of wildlife use.

The study area falls within the "Foxol-Elzinga Association" soil mapping unit. This designation describes shallow and excessively drained soils with textures ranging from silt loam to gravelly loam. The area soils tend to be gravelly with abundant surface rock. Because maximum soil depth is only about 17 inches, these soils become very dry in the summer. Depth to fractured bedrock is less than 10 inches in many places (Chadwick et al. 1975). Soils on the site have a clay loam texture with a neutral reactivity (pH of 6.7). Rocks are common on the surface and throughout the profile. Effective rooting depth (see methods) was estimated at less than 8 inches. Soil temperature is relatively high averaging nearly 72° F at a depth of about 10 inches. Due to the abundance of rock, vegetation and litter cover, erosion is not currently a problem on the site.

Quality browse forage is in short supply. Rocky Mountain smooth sumac is the most abundant species, a vigorously sprouting shrub that tends to die-back severely each year. This species occurs in large patches over most of the Brigham-Willard face. It has replaced much of the native big sagebrush in the last couple of decades. Small numbers of mountain big sagebrush (200 plants/acre) still persist, but they have had a low reproductive potential resulting in very little recruitment of young plants into the population. Both smooth sumac and big sagebrush sustained moderate to heavy use in 1984, although current use is light. Other browse include increasers such as stickyleaf low rabbitbrush and broom snakeweed, with patches of taller shrubs such as bigtooth maple and black chokecherry.

Herbaceous species currently determine the study area's dominant vegetative character. Grasses are the most productive class of plants and consist primarily of bluebunch wheatgrass and cheatgrass brome. Sandberg bluegrass occurs frequently but produces little forage. Annual grasses and annual forbs were not included in the previous sampling method, so no abundance comparisons can be made. Forb composition is dominated by a mixture of poor value perennials and a variety of weeds. The most abundant forbs include milkweed, dyers woad, yellow salsify and ragweed.

1984 APPARENT TREND ASSESSMENT

This study area is representative of the depleted range that extends all along west-facing mountain slopes of management unit 3. Soil condition is perhaps a little poorer than average and appears to be declining. Vegetatively, most of the native plants have been replaced by undesirable shrubs and noxious weeds. Trend appears to be down and no prospects for improvement are in sight.

1990 TREND ASSESSMENT

The limited browse on this rather depleted site has been only lightly used the last several years. It has good vigor. The limited distribution of mountain big sagebrush has experienced a small increase in density. The stand of smooth sumac is unchanged. Bluebunch wheatgrass declined significantly in frequency, but overall the site remains stable but in poor range condition. Although there is a substantial amount of similar range on the west-facing slopes of the Wasatch Mountains in this unit, there is also a surprisingly large amount of productive range on the narrow terraces. Just below the steep and rocky study site, there is a stand of lightly used big sagebrush and tall bitterbrush.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - stable (3), should carefully monitor weedy species, especially dyers woad which has increased

1996 TREND ASSESSMENT

Trend for soil is up due to an increase in percent litter cover and a decline in percent bare ground. Erosion is not currently a problem on this site. The browse trend is stable but dominated by smooth sumac. Density of mountain big sagebrush is similar to 1990 estimates. The small decline in density is likely the result of the much larger sample size used this year giving more accurate estimates of shrub density. Density of smooth sumac is unchanged. Trend for the herbaceous understory is down. Sum of nested frequency of perennial grasses has declined. Both bluebunch wheatgrass and Sandberg bluegrass have declined in their sum of nested frequency values. Currently, annual brome grass accounts for 62% of the grass cover. The forb composition is extremely poor and dominated by weeds including ragweed, milkweed, dyers woad and yellow salsify. Dyers woad has increased in abundance with each reading.

TREND ASSESSMENT

soil - up (5)

browse - stable but dominated by smooth sumac (3)

herbaceous understory - down and in poor condition due to weedy composition (1)

HERBACEOUS TRENDS --

Herd unit 03 , Study no: 5

Type	Species	Nested Frequency			Quadrat Frequency			Average Cover %
		'84	'90	'96	'84	'90	'96	'96
G	Agropyron spicatum	202	172	168	82	74	70	12.33
G	Bromus brizaeformis (a)	-	-	104	-	-	40	.85
G	Bromus japonicus (a)	-	-	273	-	-	87	6.67
G	Bromus tectorum (a)	-	-	332	-	-	94	14.35
G	Poa bulbosa	a-	b15	a-	-	5	-	-
G	Poa secunda	b69	b79	a28	32	36	12	.81
Total for Annual Grasses		0	0	709	0	0	221	21.88
Total for Perennial Grasses		271	266	196	114	115	82	13.14
Total for Grasses		271	266	905	114	115	303	35.03
F	Achillea millefolium	4	-	2	2	-	1	.15
F	Agoseris glauca	4	2	-	2	1	-	-
F	Allium acuminatum	b9	b12	a-	6	6	-	-
F	Alyssum alyssoides (a)	-	-	2	-	-	1	.00
F	Ambrosia psilostachya	b36	ab32	a21	15	14	10	.32
F	Apocynum androsaemifolium pumilum	1	-	-	1	-	-	-
F	Artemisia ludoviciana	-	1	-	-	1	-	-
F	Asclepias hallii	10	9	14	4	5	5	1.12
F	Comandra pallida	-	-	2	-	-	1	.03
F	Crepis acuminata	-	4	-	-	1	-	-
F	Epilobium brachycarpum (a)	-	-	9	-	-	3	.04
F	Galium aparine (a)	-	-	2	-	-	1	.00
F	Hackelia patens	b23	a-	a-	12	-	-	-
F	Isatis tinctoria	a48	ab81	b97	26	36	46	1.14
F	Lactuca serriola	a-	b26	a9	-	12	4	.04
F	Lomatium spp.	a-	c131	b38	-	64	16	.08
F	Microseris nutans	4	-	-	2	-	-	-
F	Phlox longifolia	-	7	1	-	3	1	.00
F	Tragopogon dubius	a12	b43	c118	7	20	54	2.30
Total for Annual Forbs		0	0	13	0	0	5	0.04
Total for Perennial Forbs		151	348	302	77	163	138	5.20
Total for Forbs		151	348	315	77	163	143	5.25

Values with different subscript letters are significantly different at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --

Herd unit 03 , Study no: 5

Type	Species	Strip Frequency	Average Cover %
		'96	'96
B	Amelanchier alnifolia	0	1.25
B	Artemisia tridentata vaseyana	9	.59
B	Gutierrezia sarothrae	22	.92
B	Opuntia fragilis	4	.03
B	Rhus glabra cismontana	70	8.48
Total for Browse		105	11.30

BASIC COVER --

Herd unit 03 , Study no: 5

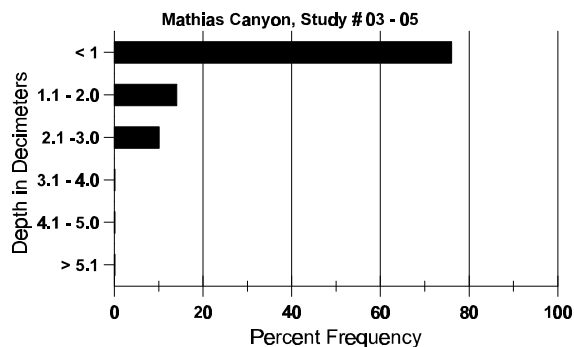
Cover Type	Nested Frequency	Average Cover %		
	'96	'84	'90	'96
Vegetation	380	1.25	8.50	47.75
Rock	341	52.00	43.00	44.36
Pavement	90	5.50	13.75	2.08
Litter	394	34.75	30.50	38.79
Cryptogams	2	0	.25	.01
Bare Ground	55	6.50	4.00	.32

SOIL ANALYSIS DATA --

Herd Unit 03, Study no: 05, Mathias Canyon

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%0M	PPM P	PPM K	dS/m
7.6	71.5 (9.8)	6.7	27.9	42.1	30.0	2.5	18.8	172.8	.4

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 03 , Study no: 5

Type	Quadrat Frequency '96
Deer	2

BROWSE CHARACTERISTICS --

Herd unit 03 , Study no: 5

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Amelanchier alnifolia																		
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	106	123	0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
		'84			00%			00%			00%							
		'90			00%			00%			00%							
		'96			00%			00%			00%							
Total Plants/Acre (excluding Dead & Seedlings)												'84		0	Dec:	-		
												'90		0		-		
												'96		0		-		
Artemisia tridentata vaseyana																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	1	-	-	-	-	-	-	-	-	1	-	-	-	66			1
	96	4	-	-	1	-	-	-	-	-	5	-	-	-	100			5
M	84	-	-	4	-	-	-	-	-	-	4	-	-	-	266	26	30	4
	90	4	-	-	-	-	-	-	-	-	4	-	-	-	266	31	51	4
	96	4	-	-	-	-	-	-	-	-	4	-	-	-	80	22	42	4
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20			1
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	20			1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
		'84			00%			100%			+20%							
		'90			00%			00%			-40%							
		'96			00%			00%			00%							
Total Plants/Acre (excluding Dead & Seedlings)												'84		266	Dec:	0%		
												'90		332		0%		
												'96		200		10%		

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4				
Gutierrezia sarothrae																		
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	96	9	-	-	-	-	-	-	-	-	9	-	-	-	180		9	
M	84	3	-	-	-	-	-	-	-	-	3	-	-	-	200	12	9	3
	90	4	-	-	-	-	-	-	-	-	4	-	-	-	266	9	17	4
	96	27	-	-	1	-	-	-	-	-	28	-	-	-	560	11	17	28
D	84	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	90	1	-	-	-	-	-	-	-	-	-	-	1	66			1	
	96	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%			+40%							
'90		00%			00%			20%			+55%							
'96		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	200	Dec:		0%		
												'90	332			20%		
												'96	740			0%		
Opuntia fragilis																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	0			0	
	96	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2	
M	84	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0	
	96	1	-	-	-	-	-	1	-	-	2	-	-	-	40	5	3	2
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			00%			00%										
'90		00%			00%			00%										
'96		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:		-		
												'90	0			-		
												'96	80			-		

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches)		Total
		1	2	3	4	5	6	7	8	9	1	2	3	4		Ht.	Cr.	
Prunus virginiana																		
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	1	-	-	-	-	-	-	-	-	-	-	1	-	66		1	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
Y	84	20	-	-	-	-	-	-	-	-	20	-	-	-	1333		20	
	90	40	-	-	-	-	-	-	-	-	4	21	15	-	2666		40	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	84	-	19	12	-	-	-	-	-	-	28	-	3	-	2066	13 7	31	
	90	-	1	-	-	-	-	-	-	-	-	1	-	-	66	34 53	1	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	- -	0	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		37%			24%			06%			-20%							
'90		02%			00%			37%										
'96		00%			00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	3399	Dec:	-			
												'90	2732		-			
												'96	0		-			
Rhus glabra cismontana																		
S	84	2	-	1	-	-	-	-	-	-	3	-	-	-	200		3	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	2	-	-	-	-	-	-	-	-	2	-	-	-	40		2	
Y	84	16	-	-	-	-	-	-	-	-	16	-	-	-	1066		16	
	90	15	-	-	-	-	-	-	-	-	15	-	-	-	1000		15	
	96	42	-	-	-	-	-	-	-	-	34	7	1	-	840		42	
M	84	-	-	30	-	-	-	-	-	-	30	-	-	-	2000	22 18	30	
	90	9	27	-	-	-	-	-	-	-	36	-	-	-	2400	23 20	36	
	96	115	11	-	-	-	-	-	-	-	126	-	-	-	2520	23 27	126	
D	84	-	-	5	-	-	-	-	-	-	5	-	-	-	333		5	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	1	1	-	-	-	-	-	-	-	2	-	-	-	40		2	
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	240		12	
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>			<u>%Change</u>							
'84		00%			69%			00%			+ 0%							
'90		53%			00%			00%			+ 0%							
'96		07%			00%			.58%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	3399	Dec:	10%			
												'90	3400		0%			
												'96	3400		1%			